

What is claimed is:

1. A secondary battery electrode, comprising:  
a collector; and  
an active material layer formed on the collector,  
5 the active material layer, comprising:  
first active material layer components including an electrode  
active material, a binder and a first polar polymer; and  
second active material layer components including a second  
polar polymer, the second active material layer components being placed  
10 in voids between the first active material layer components,  
wherein the secondary battery electrode is used in a secondary battery  
having a gel polymer electrolyte.
2. A secondary battery electrode according to claim 1,  
15 wherein the second active material layer components is gel state.
3. A secondary battery electrode according to claim 1,  
wherein the proportion of the total mass of the binder and the first polar  
polymer in the first active material layer components is in a range from 5 to 30  
20 wt% based on the mass of the electrode active material.
4. A secondary battery electrode according to claim 1,  
wherein the proportion of the mass of the first polar polymer is in a range  
from 3 to 70 wt% based on the total mass of the first polar polymer and the  
25 binder.
5. A secondary battery electrode according to claim 1,  
wherein the binder is polyvinylidene fluoride or a copolymer of  
vinylidene fluoride with a compound copolymerizable with vinylidene fluoride.

6. A secondary battery electrode according to claim 1,  
wherein the first polar polymer and second polar polymer are polyether  
cross-linked by a cross-linkable functional group.
- 5 7. A secondary battery electrode according to claim 1,  
wherein the electrode active material is a carbon material.
8. A method of producing a secondary battery electrode, comprising:  
applying a slurry containing an electrode active material, a binder and a  
10 first polar polymer on a collector;  
drying the slurry to obtain an active material layer precursor containing  
the electrode active material, the binder and the first polar polymer;  
supplying a solution containing a second polar polymer into voids in the  
active material layer precursor, and  
15 gelling the solution,  
wherein the secondary battery electrode is used in a secondary battery  
having a gel polymer electrolyte.
9. A secondary battery, comprising:  
20 a secondary battery electrode including a collector, and an active material  
layer formed on the collector,  
the active material layer, comprising:  
first active material layer components including an electrode  
active material, a binder and a first polar polymer; and  
25 second active material layer components including a second  
polar polymer, the second active material layer components being placed  
in voids between the first active material layer components,  
wherein the secondary battery electrode is used in a secondary battery  
having a gel polymer electrolyte.

10. A secondary battery according to claim 9,  
wherein the secondary battery is a bipolar battery.

11. A vehicle, comprising:

5 a secondary battery including a secondary battery electrode having a collector, and an active material layer formed on the collector,  
the active material layer, comprising:

first active material layer components including an electrode  
active material, a binder and a first polar polymer; and

10 second active material layer components including a second  
polar polymer, the second active material layer components being placed  
in voids between the first active material layer components,

wherein the secondary battery electrode is used in a secondary battery  
having a gel polymer electrolyte.

15